

Eagle Creek Park (A Hike)

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Classroom sessions/estimated time: 2 blocks or 3-4 regular class periods

Grade Level(s): 8-9

Geography Standards Addressed:

1: The World in Spatial Terms – Standard 1 - How to Use Maps and Other Geographic Representations, Tools, and Technologies to Acquire, Process, and Report Information From a Spatial Perspective

1: The World in Spatial Terms Standard 3 - How to Analyze the Spatial Organization of People, Places, and Environments on Earth's Surface

2: Places and Regions – Standard 4 - The Physical and Human Characteristics of Places

4: Human Systems – Standard 9 - The Characteristics, Distribution, and Migration of Human Population on Earth's Surface

5: Environment and Society – Standard 14 - How Human Actions Modify the Physical Environment

Indiana Social Studies Academic Standards Addressed:

WG.1.1 – Earth's grid system, latitude and longitude

WG.1.3 – use GIS and GPS to establish special relationships

WG.1.4 – Explain that maps contain special elements of point, line, area and volume.

WG .1.5 – use a variety of sources to answer geographic questions.

Objectives:

Upon completion of this activity students will have learned how to:

1. Plot out a hiking course using aerial photos and a topographic overlay.
2. Find the latitude and longitude of absolute locations.
3. Measure the total distance of a hiked area.
4. Figure the area of the ground walked using Heron's Formula.

Background: As an activity to help students understand what maps mean, use the What Do Maps Show activity on the USGS home page.

<http://interactive2.usgs.gov/learningweb/teachers/mapsshow.htm>

Materials required & Resources:

1. Attachments:

- a. [Topo map of Eagle Creek](#) road area. – To site plan a hike.
- b. [Aerial map of same area](#). – For use in seeing elevation change.
- c. Heron's Formula activity. ([1](#) and [2](#))

2. Instructions on measuring student's steps. – To measure their hike and figure

Heron's Formula.

3. Computer to see L & L of Eagle Creek Area.

4. [Student Log](#) for Students to fill in.

5. Hard copy or computer version of mission geography lesson.

Procedures: This activity can be done in pairs or individually. Tasks should be done in order, students can not move ahead.

1. Use the attached Aerial photo and have each student look at the paths and pick a hiking route with three points on it (a triangle). It may be easiest to make an overhead to review with and make some copies for the students. Have students check that off on their student log.
2. Have students complete the How Can We Compare Maps With Images From Space. This is a k-4 lesson, but you can just use parts of it (or all of it) to help illustrate how these images are used. <http://missiongeography.org>
3. After picking their route, use the topo map of the same area and have the students look at and list all the changes in elevation. Have the kids graph out the route. Have students fill that out in their student log.
4. Using a computer, have the students approximate the latitude and longitude of the three points that they picked. <http://terraserver.homeadvisor.msn.com> Have students fill that in on their student log.

Use the following formula to have the kids figure out how long their step is: Use a tape measurer, pull out a good distance and place on ground. Have each student walk up to it and take three steps starting at the front of tape measurer. Do this three times and average it and then divide by three.

Total 1 + total 2 + total 3 = grand total / 3 = average of 3 steps / 3 = length of step

5. Have students fill out that task of their student log.
6. Time to hit the road! Go to Eagle Creek and have students walk their routes. Have them count the steps in their routes. You will need to use those 3 points that they picked in task 1. Students need totals from point 1 to point 2, from point 2 to point 3, and from point 3 back to point 1. Then have them add up all totals for a grand total. Have them fill out task 6 of their student log.
7. Have them fill out task 7.

Assessment: The scale can be adjusted to fit any scale that you use.

Performance Assessment

4 exemplary	Has met all expectations completely. Has completed the extension option.
3 satisfactory	Has met all expectations completely (tasks 1-7) and correctly.
2 needs working	Has met 5 of the 7 expectations (tasks) completely and needs work on 2 of the expectations (tasks).

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unsatisfactory Has not met the minimum requirement of at least 5 of the 7 expectations (tasks). The assignment either needs to have continued work done (late) or needs to be redone.

Adaptations/Extensions:

Have the student complete the Heron's Formula activity.